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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/044,614	01/11/2002	Jay P. Hoeflinger	INTL-0664-US	9475

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EXAMINER

NAHAR, QAMRUN

ART UNIT PAPER NUMBER

2191

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/22/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/044,614

Applicant(s)

HOEFLINGER ET AL.

Examiner

Qamrun Nahar

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 December 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 and 24-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-22 and 24-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This action is in response to the amendment filed on 12/11/2006.
2. Claims 1-22 and 24-30 are pending.
3. Claims 1-22 and 24-30 stand finally rejected under 35 U.S.C. 103(a) as being unpatentable over Poulsen (U.S. 5,812,852) in view of Peng (U.S. 6,393,523).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-22 and 24-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Poulsen (U.S. 5,812,852) in view of Peng (U.S. 6,393,523).

Per Claim 1:

Poulsen teaches a method comprising: receiving a first program unit in a parallel computing environment having a team of parallel threads including at least a first and second thread, the first program unit including a memory copy operation to be performed between the first thread and the second thread (column 4, lines 62-67); translating the first program unit into a second program unit, the second program unit to associate the memory copy operation with a set of one or more instructions, the set of instructions to ensure that the second thread copies data based, in part, on a first descriptor associated with the first thread (column 4, line 67 to column 5,

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lines 1-20; and column 6, lines 64-67 to column 7, lines 1-6; a new pointer variable is declared for the new compound object, and any reference to the new compound object is made via the new pointer variable. That is, the new pointer variable is interpreted as the first descriptor associated with the first thread.); and copying an address of the first descriptor to a storage ("Step 500 allocates storage in global memory for a new private object descriptor that will hold information about this particular piece of privatized storage for the current thread id. Step 510 allocates thread-private storage for the object and the current thread id with the same size, in bytes, as the global storage object. Step 520 initializes the private object descriptor allocated in step 500 with the address of the storage allocated in step 510" in column 10, line 61 to column 11, line 4; Step 510 allocates thread-private storage for the object. Each thread has thread-private storage. Multiple threads have multiple thread-private storages. That is, multiple thread-private storages are multiple temporary storages for the object.).

Poulsen does not explicitly teach a two address buffer. Peng teaches a two address buffer ("two address *buffers* 221" (emphasis added) in column 10, lines 21-27; Figure 2, item 221 illustrates two buffers. However, these buffers are *two address* buffers. The mere fact that there is more than one buffer does not indicate that each buffer is not a two address buffer).

It would have been obvious to one having ordinary skill in the computer art at the time of the invention was made to modify the method disclosed by Poulsen to include a two address buffer using the teaching of Peng. The modification would be obvious because one of ordinary skill in the art would be motivated to process instructions in a more efficient manner (Peng, column 2, lines 44-50).

Per Claim 2:

The rejection of claim 1 is incorporated, and Poulsen further teaches further comprising copying data into a memory area associated with the second thread based, in part, on address and data information associated with the first descriptor (column 5, lines 11-20).

Per Claim 3:

The rejection of claim 2 is incorporated, and Poulsen further teaches further comprising copying data into a memory area associated with second thread utilizing, in part, a second descriptor associated with the second thread (column 6, lines 64-67 to column 7, lines 1-6).

Per Claim 4:

The rejection of claim 1 is incorporated, and Poulsen further teaches further comprising enabling the first thread to copy an address of the first descriptor to a buffer and setting a signal to enable the second thread to copy data associated with the first descriptor to a memory area associated with the second thread (column 6, lines 64-67 to column 7, lines 1-6).

Per Claim 5:

The rejection of claim 4 is incorporated, and Poulsen further teaches further comprising enabling the first thread to enter a wait state after the signal is set (column 6, lines 64-67 to column 7, lines 1-6).

Per Claim 6:

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The rejection of claim 5 is incorporated, and Poulsen further teaches further comprising releasing the first thread from a wait state upon completion of the data copy operation by the second thread (column 6, lines 64-67 to column 7, lines 1-6).

Per Claim 7:

The rejection of claim 5 is incorporated, and Poulsen further teaches further comprising enabling the first thread to copy an address the first descriptor to one of two buffer areas (column 6, lines 64-67 to column 7, lines 1-6; and column 10, line 61 to column 11, line 4).

Per Claim 8:

The rejection of claim 1 is incorporated, and Poulsen further teaches further comprising receiving the first program unit in source code format and translating the first program unit into a second program unit in source code format (column 8, lines 28-39).

Per Claims 9-10, 11-15 & 17:

These are machine-readable medium versions of the claimed method discussed above (claims 1-8, respectively), wherein all claim limitations also have been addressed and/or covered in cited areas as set forth above. Thus, accordingly, these claims are also obvious.

Per Claim 16:

This is a machine-readable medium version of the claimed method discussed above, claim 3, wherein all claim limitations also have been addressed and/or covered in cited areas as set forth above. Thus, accordingly, this claim is also obvious.

Per Claim 18:

Poulsen teaches a method comprising: receiving a first program unit in a parallel computing environment and translating the first program unit, in part, into one or more computer instructions, the instructions enabling a second thread in a team of threads to copy data, into a memory area associated with the second thread, from a private memory area associated with a first thread (column 4, line 67 to column 5, lines 1-20); and copying an address of a descriptor into a storage utilized by the second thread, in part, to copy data from the memory area associated with the first thread (column 5, lines 11-20; column 6, lines 64-67 to column 7, lines 1-6; and see also “Step 500 allocates storage in global memory for a new private object descriptor that will hold information about this particular piece of privatized storage for the current thread id. Step 510 allocates thread-private storage for the object and the current thread id with the same size, in bytes, as the global storage object. Step 520 initializes the private object descriptor allocated in step 500 with the address of the storage allocated in step 510” in column 10, line 61 to column 11, line 4; Step 510 allocates thread-private storage for the object. Each thread has thread-private storage. Multiple threads have multiple thread-private storages. That is, multiple thread-private storages are multiple temporary storages for the object.).

Poulsen does not explicitly teach a two address buffer. Peng teaches a two address buffer (column 10, lines 21-27).

It would have been obvious to one having ordinary skill in the computer art at the time of the invention was made to modify the method disclosed by Poulsen to include a two address buffer using the teaching of Peng. The modification would be obvious because one of ordinary skill in the art would be motivated to process instructions in a more efficient manner (Peng, column 2, lines 44-50).

Per Claim 19:

The rejection of claim 18 is incorporated, and Poulsen further teaches further comprising creating a descriptor utilized, in part, by the second thread to copy data into the memory area associated with the second thread (column 5, lines 11-14).

Per Claim 20:

The rejection of claim 19 is incorporated, and Poulsen further teaches further comprising setting a signal by the first thread enabling the second thread to copy the data from the memory area associated with the first thread (column 6, lines 64-67 to column 7, lines 1-6).

Per Claim 21:

The rejection of claim 20 is incorporated, and Poulsen further teaches further comprising entering a wait state by the first thread until the second thread copies the data from the memory area associated with the first thread (column 6, lines 64-67 to column 7, lines 1-6).

Per Claims 22, 24 & 25-28:

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These are apparatus versions of the claimed method discussed above (claims 1-6 & 8), wherein all claim limitations also have been addressed and/or covered in cited areas as set forth above, including "a memory including a shared memory location" (Poulsen, column 8, lines 28-45). Thus, accordingly, these claims are also obvious.

Per Claim 29:

The rejection of claim 28 is incorporated, and Poulsen further teaches wherein the first descriptor is passed to the first program unit (column 8, lines 46-51).

Per Claim 30:

The rejection of claim 22 is incorporated, and Poulsen further teaches wherein the translation unit translates the first program unit, in part, into a second program unit in source code format and the second program unit includes the memory copy operation (column 8, lines 28-39).

Response to Arguments

6. Applicant's arguments filed on 12/11/2006 have been fully considered but they are not persuasive.

In the remarks, the applicant argues that:

a) The cited reference to Peng teaches "two address buffers 221." As shown in Figure 2, there are two buffers 221. Thus, Peng does not teach a two address buffer 221. He teaches two

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address buffers 221. Therefore, Peng does not teach the element which is concededly missing in the cited Poulsen reference and reconsideration is, therefore, respectfully requested.

Examiner's response:

a) Examiner strongly disagrees with applicant's assertion that Peng fails to teach the claimed limitation "a two address buffer". Peng teaches a two address buffer ("two address *buffers* 221" (emphasis added) in column 10, lines 21-27; Figure 2, item 221 illustrates two buffers. However, these buffers are *two address* buffers. The mere fact that there is more than one buffer does not indicate that each buffer is not a two address buffer).

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

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8. Any inquiry concerning this communication from the examiner should be directed to Qamrun Nahar whose telephone number is (571) 272-3730. The examiner can normally be reached on Mondays through Fridays from 9:30 AM to 6:00 PM.

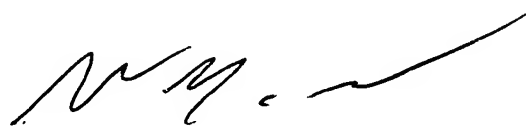
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wei Y Zhen, can be reached on (571) 272-3708. The fax phone number for the organization where this application or processing is assigned is (571) 273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the TC 2100 Group receptionist whose telephone number is 571-272-2100.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Qamrun Nahar
March 18, 2007



WEI ZHEN
SUPERVISORY PATENT EXAMINER